

SEQUENCE LISTING

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<120> 2-Methyl-6-solanylbenzoquinone methyltransferase as target for herbicides

<130> 12810-00260-US

<150> PCT/EP2004/013560
 <151> 2004-11-30

<150> DE 103 56 631.7
 <151> 2003-12-02

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<170> PatentIn version 3.3

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tca ata cta agt gga gct gaa aat ttc aag att ctt agt ggt att tct 166
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 Pro Ser Glu Leu His Ile Lys Cys Phe Pro Gln Lys Gly Leu Val Asn
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 Tyr Ser Arg Ile Pro Asn Thr Lys Ser Arg Thr Leu Arg Thr Lys Cys
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 Ser Val Ser Ser Ser Arg Pro Ala Ser Gln Pro Arg Phe Ile Gln His
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Leu	Glu	Pro	Ala	Glu	Leu	Asn	Ser	Arg	Gln	Leu	Gln	Val	Val	Asp	Val	
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Phe	Ala	Gln	Val	Lys	Leu	Lys	Arg	Ile	Gly	Pro	Lys	Trp	Tyr	Arg	Gly	
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 35 40 45

Thr Lys Cys Ser Val Ser Ser Ser Arg Pro Ala Ser Gln Pro Arg Phe
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Ile Gln His Lys Lys Glu Ala Phe Trp Phe Tyr Arg Phe Leu Ser Ile
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Val Tyr Asp His Val Ile Asn Pro Gly His Trp Thr Glu Asp Met Arg
 85 90 95

Asp Glu Ala Leu Glu Pro Ala Glu Leu Asn Ser Arg Gln Leu Gln Val
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His Val Asp Ala Lys Asn Val Thr Ile Ile Asp Gln Ser Pro His Gln
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Glu Gly Asp Ala Glu Asp Leu Pro Phe Pro Thr Asp Thr Phe Asp Arg
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 180 185 190

Ile Lys Glu Ala Tyr Arg Val Leu Thr Ile Gly Gly Val Ala Cys Leu
 195 200 205

Ile Gly Pro Val Tyr Pro Thr Phe Trp Leu Ser Arg Phe Phe Ala Asp
 210 215 220

Met Trp Met Leu Phe Pro Lys Glu Glu Glu Tyr Ile Glu Trp Phe Lys
 225 230 235 240

Lys Ala Gly Phe Ala Gln Val Lys Leu Lys Arg Ile Gly Pro Lys Trp
 245 250 255

Tyr Arg Gly Val Arg Arg His Gly Leu Ile Met Gly Cys Ser Val Thr
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Gly Val Lys Pro Tyr Phe Gly Glu Ser Pro Leu Gln Leu Gly Pro Lys
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Val Glu Asp Val Ser Lys Pro Val Asn Pro Phe Ala Phe Leu Val Arg
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Lys	Cys	Ser	Ser	Ser	Ser	Val	Ser	Ser	Ser	Arg	Pro	Ser	Ala	Gln	Pro	
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Arg	Val	Val	Asp	Val	Gly	Gly	Gly	Thr	Gly	Phe	Thr	Thr	Leu	Gly	Ile	
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Val	Lys	Thr	Val	Lys	Ala	Lys	Asn	Val	Thr	Ile	Leu	Asp	Gln	Ser	Pro	
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Asp	Arg	Tyr	Val	Ser	Ala	Gly	Ser	Ile	Glu	Tyr	Trp	Pro	Asp	Pro	Gln	
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Cys	Leu	Ile	Gly	Pro	Val	Tyr	Pro	Thr	Phe	Trp	Leu	Ser	Arg	Phe	Phe	
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Phe	Lys	Asn	Ala	Gly	Phe	Lys	Asp	Val	Gln	Leu	Lys	Arg	Ile	Gly	Pro	
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aag	tgg	tac	cgt	ggt	gtt	cgc	agg	cac	ggc	ctt	atc	atg	gga	tgt	tct	816
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Leu Gly Arg Phe Leu Leu Gly Thr Leu Ala Ala Ala Trp Phe Val Leu			
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atc cct atc tac atg tgg atc aag gat cag atc gtt ccc aaa gac caa			1008
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Lys Cys Ser Ser Ser Ser Val Ser Ser Ser Arg Pro Ser Ala Gln Pro
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Arg Phe Ile Gln His Lys Lys Glu Ala Tyr Trp Phe Tyr Arg Phe Leu
65 70 75 80

Ser Ile Val Tyr Asp His Val Ile Asn Pro Gly His Trp Thr Glu Asp
85 90 95

Met Arg Asp Asp Ala Leu Glu Pro Ala Asp Leu Ser His Pro Asp Met
100 105 110

Arg Val Val Asp Val Gly Gly Gly Thr Gly Phe Thr Thr Leu Gly Ile
115 120 125

Val Lys Thr Val Lys Ala Lys Asn Val Thr Ile Leu Asp Gln Ser Pro
 130 135 140

His Gln Leu Ala Lys Ala Lys Gln Lys Glu Pro Leu Lys Glu Cys Lys
 145 150 155 160

Ile Val Glu Gly Asp Ala Glu Asp Leu Pro Phe Pro Thr Asp Tyr Ala
 165 170 175

Asp Arg Tyr Val Ser Ala Gly Ser Ile Glu Tyr Trp Pro Asp Pro Gln
 180 185 190

Arg Gly Ile Arg Glu Ala Tyr Arg Val Leu Lys Ile Gly Gly Lys Ala
 195 200 205

Cys Leu Ile Gly Pro Val Tyr Pro Thr Phe Trp Leu Ser Arg Phe Phe
 210 215 220

Ser Asp Val Trp Met Leu Phe Pro Lys Glu Glu Glu Tyr Ile Glu Trp
 225 230 235 240

Phe Lys Asn Ala Gly Phe Lys Asp Val Gln Leu Lys Arg Ile Gly Pro
 245 250 255

Lys Trp Tyr Arg Gly Val Arg Arg His Gly Leu Ile Met Gly Cys Ser
 260 265 270

Val Thr Gly Val Lys Pro Ala Ser Gly Asp Ser Pro Leu Gln Leu Gly
 275 280 285

Pro Lys Glu Glu Asp Val Glu Lys Pro Val Asn Asn Pro Phe Ser Phe
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Ile Val Tyr Asp His Val Ile Asn Pro Gly His Trp Thr Glu Asp Met	
35 40 45	
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Arg Asp Asp Ala Leu Glu Pro Ala Asp Leu Ser His Pro Asp Met Arg	
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Lys Thr Val Lys Ala Lys Asn Val Thr Ile Leu Asp Gln Ser Pro His	
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Gln Leu Ala Lys Ala Lys Gln Lys Glu Pro Leu Lys Glu Cys Lys Ile	
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gtc gag gga gat gct gag gat ctt cct ttt cca acc gat tat gct gac	384
Val Glu Gly Asp Ala Glu Asp Leu Pro Phe Pro Thr Asp Tyr Ala Asp	
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Arg Tyr Val Ser Ala Gly Ser Ile Glu Tyr Trp Pro Asp Pro Gln Arg	
130 135 140	
gga ata agg gaa gcg tac agg gtt ctc aag atc ggt ggc aaa gcg tgt	480
Gly Ile Arg Glu Ala Tyr Arg Val Leu Lys Ile Gly Gly Lys Ala Cys	
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Leu Ile Gly Pro Val Tyr Pro Thr Phe Trp Leu Ser Arg Phe Phe Ser	
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Asp Val Trp Met Leu Phe Pro Lys Glu Glu Glu Tyr Ile Glu Trp Phe	
180 185 190	
aag aat gcc ggt ttc aag gac gtt cag ctc aag agg att ggc ccc aag	624
Lys Asn Ala Gly Phe Lys Asp Val Gln Leu Lys Arg Ile Gly Pro Lys	
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Trp Tyr Arg Gly Val Arg Arg His Gly Leu Ile Met Gly Cys Ser Val	

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Gly Arg			

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Lys Thr Val Lys Ala Lys Asn Val Thr Ile Leu Asp Gln Ser Pro His			
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Gln Leu Ala Lys Ala Lys Gln Lys Glu Pro Leu Lys Glu Cys Lys Ile			
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 195 200 205

Trp Tyr Arg Gly Val Arg Arg His Gly Leu Ile Met Gly Cys Ser Val
 210 215 220

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 Gln His Lys Lys Glu Ala Tyr Trp Phe Tyr Arg Phe Leu Ser Ile Val
 20 25 30

tac gac cat gtc atc aat cct ggg cat tgg acc gag gat atg aga gac 144
 Tyr Asp His Val Ile Asn Pro Gly His Trp Thr Glu Asp Met Arg Asp
 35 40 45

gac gct ctt gag cca gcg gat ctc agc cat ccg gac atg cga gtg gtc 192
 Asp Ala Leu Glu Pro Ala Asp Leu Ser His Pro Asp Met Arg Val Val
 50 55 60

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 Asp Val Gly Gly Gly Thr Gly Phe Thr Thr Leu Gly Ile Val Lys Thr
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Val Lys Ala Lys Asn Val Thr Ile Leu Asp Gln Ser Pro His Gln Leu
85 90 95

gcc aaa gca aag caa aag gag ccg ttg aaa gaa tgc aag atc gtc gag 336
Ala Lys Ala Lys Gln Lys Glu Pro Leu Lys Glu Cys Lys Ile Val Glu
100 105 110

gga gat gct gag gat ctt cct ttt cca acc gat tat gct gac aga tac 384
Gly Asp Ala Glu Asp Leu Pro Phe Pro Thr Asp Tyr Ala Asp Arg Tyr
115 120 125

gtt tct gct gga agc att gag tac tgg ccg gac ccg cag agg gga ata 432
Val Ser Ala Gly Ser Ile Glu Tyr Trp Pro Asp Pro Gln Arg Gly Ile
130 135 140

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145 150 155 160

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Gly Pro Val Tyr Pro Thr Phe Trp Leu Ser Arg Phe Phe Ser Asp Val
165 170 175

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180 185 190

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Ala Gly Phe Lys Asp Val Gln Leu Lys Arg Ile Gly Pro Lys Trp Tyr
195 200 205

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210 215 220

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225 230 235 240

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Gln His Lys Lys Glu Ala Tyr Trp Phe Tyr Arg Phe Leu Ser Ile Val
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Tyr Asp His Val Ile Asn Pro Gly His Trp Thr Glu Asp Met Arg Asp
35 40 45

Asp Ala Leu Glu Pro Ala Asp Leu Ser His Pro Asp Met Arg Val Val
 50 55 60

Asp Val Gly Gly Gly Thr Gly Phe Thr Thr Leu Gly Ile Val Lys Thr
 65 70 75 80

Val Lys Ala Lys Asn Val Thr Ile Leu Asp Gln Ser Pro His Gln Leu
 85 90 95

Ala Lys Ala Lys Gln Lys Glu Pro Leu Lys Glu Cys Lys Ile Val Glu
 100 105 110

Gly Asp Ala Glu Asp Leu Pro Phe Pro Thr Asp Tyr Ala Asp Arg Tyr
 115 120 125

Val Ser Ala Gly Ser Ile Glu Tyr Trp Pro Asp Pro Gln Arg Gly Ile
 130 135 140

Arg Glu Ala Tyr Arg Val Leu Lys Ile Gly Gly Lys Ala Cys Leu Ile
 145 150 155 160

Gly Pro Val Tyr Pro Thr Phe Trp Leu Ser Arg Phe Phe Ser Asp Val
 165 170 175

Trp Met Leu Phe Pro Lys Glu Glu Glu Tyr Ile Glu Trp Phe Lys Asn
 180 185 190

Ala Gly Phe Lys Asp Val Gln Leu Lys Arg Ile Gly Pro Lys Trp Tyr
 195 200 205

Arg Gly Val Arg Arg His Gly Leu Ile Met Gly Cys Ser Val Thr Gly
 210 215 220

Val Lys Pro Ala Ser Gly Asp Ser Pro Leu Gln Leu Gly Pro Lys Glu
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Glu Pro Leu Lys Glu Cys Lys Ile Leu Glu Gly Asp Ala Glu Asp Leu	
20 25 30	
cct ttt cct act gat act ctt gat aga tat gtt tct gct gga ggc att	144
Pro Phe Pro Thr Asp Thr Leu Asp Arg Tyr Val Ser Ala Gly Gly Ile	
35 40 45	
gag tat tgg ccc gat cca cag cgc ggt atc aag gaa gca tac cga gta	192
Glu Tyr Trp Pro Asp Pro Gln Arg Gly Ile Lys Glu Ala Tyr Arg Val	
50 55 60	
ctg acc ata ggt ggt gtt gcc tgc tta ata ggt cct gtg tac ccg acg	240
Leu Thr Ile Gly Gly Val Ala Cys Leu Ile Gly Pro Val Tyr Pro Thr	
65 70 75 80	
ttt tgg cta tct cgt ttc ttt gca gat atg tgg atg ctc ttt cca aaa	288
Phe Trp Leu Ser Arg Phe Phe Ala Asp Met Trp Met Leu Phe Pro Lys	
85 90 95	
gaa gaa gaa tat ata gaa tgg ttc aaa aaa gct ggt ttc gct caa gtt	336
Glu Glu Glu Tyr Ile Glu Trp Phe Lys Lys Ala Gly Phe Ala Gln Val	
100 105 110	
aaa ctc aag agg att ggc cca aaa tgg tat cgt ggt gtc tgt cgc cat	384
Lys Leu Lys Arg Ile Gly Pro Lys Trp Tyr Arg Gly Val Cys Arg His	
115 120 125	
ggc ttg atc atg ggt tgt tct gtg act ggt gtc aag cca tat ttt ggg	432
Gly Leu Ile Met Gly Cys Ser Val Thr Gly Val Lys Pro Tyr Phe Gly	
130 135 140	
gaa tct ccg ttg cag ctc ggt ccg aag gtt gag gat gtg agc aag cct	480
Glu Ser Pro Leu Gln Leu Gly Pro Lys Val Glu Asp Val Ser Lys Pro	
145 150 155 160	
gta aac cca ttc gta ttt ctc gtg cga ttc ctc ctt ggc ata act gct	528
Val Asn Pro Phe Val Phe Leu Val Arg Phe Leu Leu Gly Ile Thr Ala	
165 170 175	
gca act tat tac gtg ctc gtt cca ata tac atg tgg ctc aag gat caa	576
Ala Thr Tyr Tyr Val Leu Val Pro Ile Tyr Met Trp Leu Lys Asp Gln	
180 185 190	
atc acc ccg aaa ggt cag cca atc tgaacaataa gaagaacgtc aatccaaaga	630
Ile Thr Pro Lys Gly Gln Pro Ile	
195 200	
gaagctctcc aagcattctg tttgagagta caccagtgc cacaaatcta tcacggaaca	690
agaaagt ttt tggcgtcgtt gcaaggggtga atttggtgct ttagtttggt agttttgcag	750
ccttagaaa ggccttttgt aaagt ttaat ttcattggtaa aacctagaaa tcattgtgac	810

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 20 25 30

Pro Phe Pro Thr Asp Thr Leu Asp Arg Tyr Val Ser Ala Gly Gly Ile
 35 40 45

Glu Tyr Trp Pro Asp Pro Gln Arg Gly Ile Lys Glu Ala Tyr Arg Val
 50 55 60

Leu Thr Ile Gly Gly Val Ala Cys Leu Ile Gly Pro Val Tyr Pro Thr
 65 70 75 80

Phe Trp Leu Ser Arg Phe Phe Ala Asp Met Trp Met Leu Phe Pro Lys
 85 90 95

Glu Glu Glu Tyr Ile Glu Trp Phe Lys Lys Ala Gly Phe Ala Gln Val
 100 105 110

Lys Leu Lys Arg Ile Gly Pro Lys Trp Tyr Arg Gly Val Cys Arg His
 115 120 125

Gly Leu Ile Met Gly Cys Ser Val Thr Gly Val Lys Pro Tyr Phe Gly
 130 135 140

Glu Ser Pro Leu Gln Leu Gly Pro Lys Val Glu Asp Val Ser Lys Pro
 145 150 155 160

Val Asn Pro Phe Val Phe Leu Val Arg Phe Leu Leu Gly Ile Thr Ala
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Ala Thr Tyr Tyr Val Leu Val Pro Ile Tyr Met Trp Leu Lys Asp Gln
 180 185 190

Ile Thr Pro Lys Gly Gln Pro Ile
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32

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